

CLAIM AMENDMENTS

1.-10. (Cancelled)

11. (Currently Amended) A method usable with a subterranean well having a casing, the method comprising:

producing fluid from the well;

using a non-acoustic sensor during the producing to measure a characteristic in a region of the well outside of the casing;

placing the sensor in a packer;

deploying the packer downhole;

setting the packer;

engaging a slip to secure the packer to the casing; and

positioning the sensor against an interior wall of the casing in response to the setting of the packer; and

puncturing the casing to measure the characteristic.

12.-17. (Cancelled)

18. (Original) The method of claim 11, wherein the sensor comprises a resistivity sensor, a nuclear sensor, a gravity/force sensor, a pressure sensor or a temperature sensor.

19.-30. (Cancelled)

31. (Currently Amended) An apparatus usable with a subterranean well having a casing, the apparatus comprising:

a punch adapted to be positioned inside a passageway of the casing and pierce the casing to establish communication with a region outside of the casing, the punch adapted to move to pierce the casing in response to a packer being set; and

a sensor adapted to be positioned inside the passageway of the casing to indicate a characteristic associated with the region.

32.-34. (Cancelled)

35. (Original) The apparatus of claim 31, further comprising:
sealing elements to seal off a portion of the casing pierced by the punch.

36. (Cancelled)

37. (Original) The apparatus of claim 31, wherein the punch includes a cavity and the sensor is located inside the cavity.

38. (Cancelled)

39. (Original) The apparatus of claim 31, further comprising:
sleeves to compress the punch to force the punch into the casing.

40. (Original) The apparatus of claim 31, wherein the punch includes another passageway to establish communication between the region and the sensor.

41.-46. (Cancelled)

47. (Previously Presented) The apparatus of claim 31, further comprising:
sealing elements; and
sleeves to concurrently force the punch into the casing and compress the sealing elements.

48.-49. (Cancelled)

50. (Currently Amended) A method usable with a subterranean well having a casing, the method comprising:

providing a puncture device inside a packer; and

actuating sleeves to force the punch into the casing ~~the puncture device~~ when the packer is set to pierce the casing to establish communication with a region outside of the casing.

51. (Original) The method of claim 50, further comprising:

sensing a characteristic of the region outside of the casing via the communication established by the puncture device.

52. (Original) The method of claim 50, wherein the sensing comprises sensing one of a resistivity, a pressure, a nuclear measurement and a gravity.

53. (Original) The method of claim 50, further comprising sealing off a portion of the casing pierced by the punch.

54. (Cancelled)

55. (Original) The method of claim 50, wherein the puncture device comprises a punch.

56.-60. (Cancelled)

61. (Currently Amended) A method usable with a subterranean well, comprising: establishing a sealed region downhole, including setting multiple spaced packers;

within the sealed region, piercing a casing of the well; and

without flowing fluids uphole from the sealed region, using the pierced casing to measure a characteristic associated with a region outside of the casing.

62. (Original) The method of claim 61, wherein the establishing comprises:

setting at least one packer downhole.

63. (Cancelled)
64. (Original) The method of claim 61, wherein the piercing comprises:
using a punch.
65. (Cancelled)
66. (Original) The method of claim 61, further comprising:
selecting the region to measure one of a gravity, pressure, resistivity and nuclear
measurement associated with the region.
67. (Original) A method usable with a subterranean well, comprising:
establishing at least one sealed region downhole;
in said at least one sealed region, piercing a casing of the well; and
without flowing fluids uphole from the sealed region, using the results of the piercing to
establish an array of downhole sensors.
68. (Original) The method of claim 67, wherein the establishing comprises:
setting at least one packer downhole.
69. (Cancelled)
70. (Original) The method of claim 67, wherein the piercing comprises:
using a punch.
71. (Original) The method of claim 67, wherein the establishing comprises:
setting multiple spaced packers.

72. (Original) The method of claim 67, further comprising:
selecting the region to measure one of a gravity, pressure, resistivity and nuclear
measurement associated with the region.

73. (Original) The method of claim 67, further comprising:
measuring a force associated with the piercing; and
using the measured force to derive a strength of a formation.

74. (Original) The method of claim 67, further comprising:
measuring a rate associated with the piercing; and
using the measured rate to derive a strength of a formation.

75.-81. (Cancelled)

82. (Previously Presented) An apparatus usable with a subterranean well having a
casing, the apparatus comprising:
a punch to be positioned inside a passageway of the casing and pierce the casing to
establish communication with a region outside of the casing; and
a sensor to be positioned inside the passageway of the casing to indicate a resistivity
associated with the region.

83. (Previously Presented) An apparatus usable with a subterranean well having a
casing, the apparatus comprising:
a punch to be positioned inside a passageway of the casing and pierce the casing to
establish communication with a region outside of the casing; and
a sensor to be positioned inside the passageway of the casing to indicate a nuclear
measurement associated with the region.

84. (Previously Presented) An apparatus usable with a subterranean well having a casing, the apparatus comprising:

a punch to be positioned inside a passageway of the casing and pierce the casing to establish communication with a region outside of the casing; and

a sensor to be positioned inside the passageway of the casing to indicate a density associated with the region.

85. (Currently Amended) An apparatus usable with a subterranean well having a casing, the apparatus comprising:

a punch to be positioned inside a passageway of the casing and pierce the casing to establish communication with a region outside of the casing;

a sensor to be positioned inside the passageway of the casing to indicate a characteristic associated with the region; and

at least one slip to secure the apparatus to the casing, wherein the punch includes a cavity and the sensor is located inside the cavity.

86. (Cancelled)

87. (Previously Presented) The apparatus of claim 85, wherein the punch moves to pierce the casing in response to a packer being set.

88. (Previously Presented) The apparatus of claim 85, further comprising:
sleeves to compress the punch to force the punch into the casing.

89. (Previously Presented) The apparatus of claim 85, wherein the punch includes another passageway to establish communication between the region and the sensor.

90. (Previously Presented) A packer comprising:
a tubular member;
sealing elements to form seals between the tubular member and a well casing and form a sealed region between the seals;
a puncture device to be positioned inside a passageway of the casing and pierce the casing to establish communication with a region outside of the casing, the puncture device comprising a punch;
a sensor to be positioned inside the passageway of the casing to indicate a characteristic associated with the region outside of the casing; and
sleeves to force the punch into the casing.

91. (Previously Presented) The packer of claim 90, wherein the sleeves concurrently force the punch into the casing and compress the sealing elements.

92. (Previously Presented) The packer of claim 90, wherein the packer comprises a hydraulically set packer.

93. (Previously Presented) The packer of claim 90, wherein the puncture device includes a passageway to establish communication between the region and the sensor.

94. (Currently Amended) A system usable with a subterranean well having a casing, the system comprising:

a non-acoustic sensor to measure a characteristic of a region of the well outside the casing; ~~and~~

a packer connected to the sensor and adapted to position the sensor against an interior wall of the casing in an expanded state of the packer, the packer comprising at least one slip to secure the packer to the casing; and

a puncture device attached to the packer to puncture the casing to permit the sensor to measure the characteristic.

95. (Previously Presented) The system of claim 94, wherein the sensor is part of a network of sensors.

96. (Previously Presented) The system of claim 94, wherein the sensor comprises a resistivity sensor, a nuclear sensor, a gravity/force sensor, a pressure sensor or a temperature sensor.

97. (Previously Presented) The system of claim 94, wherein the sensor is adapted to measure the characteristic without requiring puncturing of the well casing.

98. (Cancelled)